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ABSTRACT

Suitable for children from grades four to seven, this dictionary is designed to introduce children to computer terminology at a level that they will understand and find useful. It is also suitable as a home resource for parents, for library use, and as a handbook for teachers. For each word, the first sentence of the definition contains the kernel of meaning, followed by additional explanation. The illustrations, which include diagrams, an animated computer character, and practice keyboards, extend the definitions and involve the reader. The 101 vocabulary entries were drawn from eight categories: general concepts, hardware, inner workings, commands, programs, keys, language, and communications. (HOD)

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THE Junior Computer Dictionary

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Suzanne Girard

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Written by
Kathlene Willing, B.Sc., M.Ed.
and
Suzanne Girard, B.A., B.Ed.

Illustrated by
Melanie Hayes

101 useful words and definitions to introduce students to computer terminology

CS208 580

THE JUNIOR COMPUTER DICTIONARY

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FOREWORD

As children encounter computer technology in their communities, schools and homes, they discover many new words and ideas. The purpose of this dictionary is to introduce students to computer terminology at a level which they will understand and find useful.

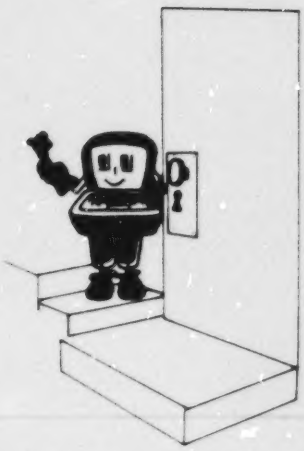
From our teaching experience, we found certain words occurred frequently in the middle stages of computer literacy. We chose 101 entries which serve as a good working vocabulary. The terminology was drawn from eight categories: general concepts, hardware, inner workings, commands, programs, keys, language and communications.

For each word, the first sentence of the definition contains the kernel of meaning, and then additional explanation follows. The illustrations, which include diagrams, an animated computer character and practice keyboards, extend the definitions and involve the reader.

This dictionary, the second book in our "Computers in the Classroom Series," is suitable for children from Grade Four to Grade Seven. Its pages invite them to investigate the terminology on their own. Parents will find that this book is a helpful resource at home. In schools, it can serve as a handbook for teachers to introduce computer vocabulary, as well as to develop interest centres and units on computer literacy. Librarians will discover that it is an excellent reference book for students preparing projects and presentations. *The Junior Computer Dictionary* sparks active and creative learning about the world of computers.

ACKNOWLEDGEMENT

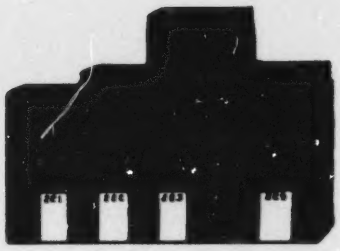
The authors wish to thank Richard Lee, Co-ordinator, Computer Studies and Applications, The Board of Education for the City of Toronto, for his interest and support in the early stages of this book. In addition, the authors wish to thank teachers, Al Teliatnick, Russ Wilkinson and Joe Vayda for their constructive vetting of the early manuscript.



When I want to use this room, I get access to it by using my key.

ACCESS

Access means to make contact with and to use a computer. You can use one computer to access stored information and memory space located in another computer. The computer you are gaining access to is sometimes called a host computer.



It is easy to find a friend's house when you have the address.

ADDRESS

An address is usually a number which refers to a particular location in the computer's memory. It is used to identify a specific location where certain information is stored. For example, in the instruction POKE 7910,81, the number 7910 is an address.

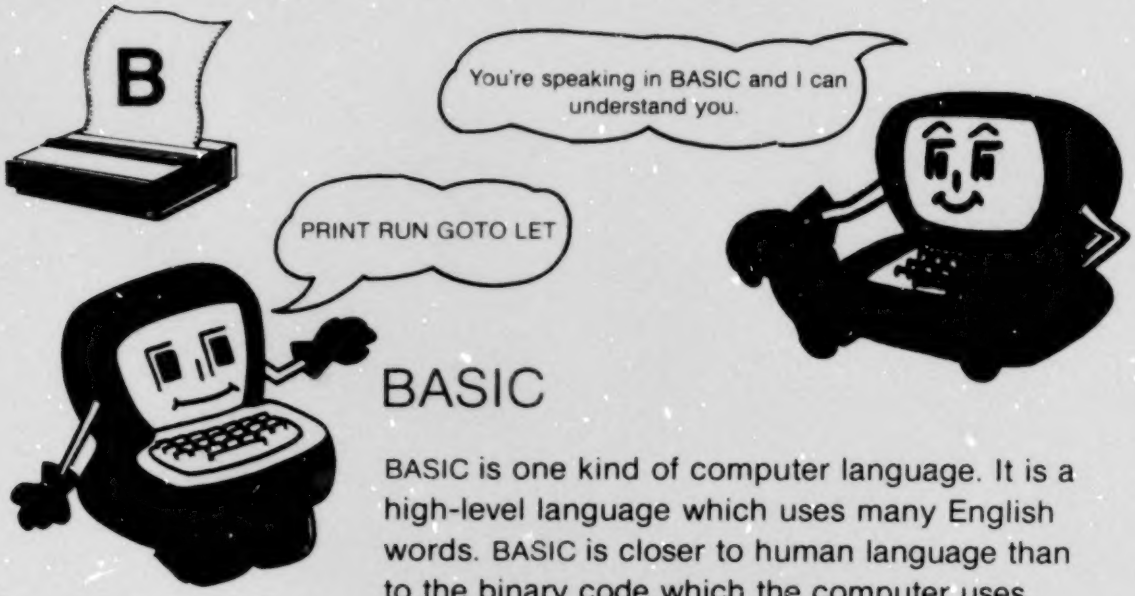
My voice makes analog signals.

ANALOG

Analog describes a kind of signal which is continuous. When you are considering analog signals, you are checking how much energy is present. Speech generates analog signals which are measured in sound waves. To be used by a computer, analog signals have to be changed into digital signals.

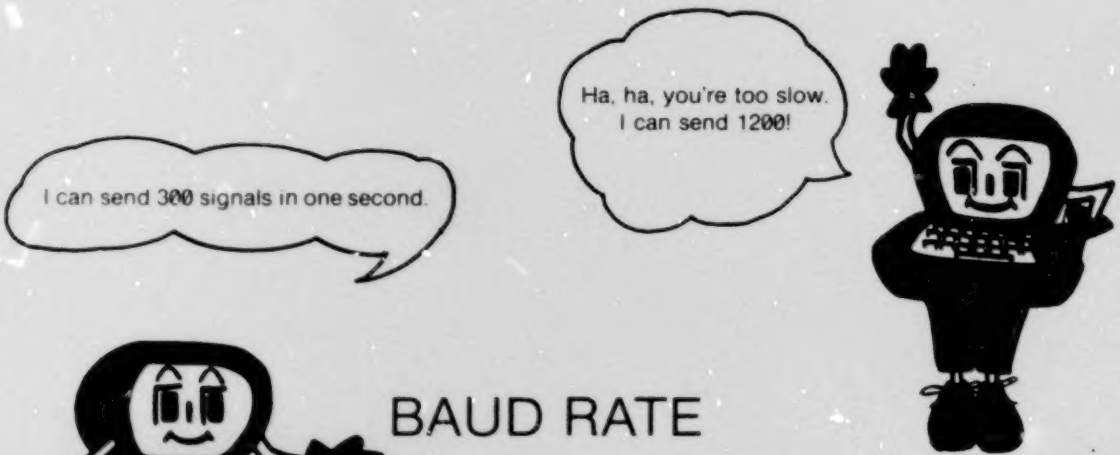
ASSEMBLY LANGUAGE

Assembly language is one kind of computer language. It is a low-level language which uses a very detailed code of letters and numbers. This code is similar to the binary code which the computer uses itself. This is why computers can quickly execute programs written in assembly language.



BASIC

BASIC is one kind of computer language. It is a high-level language which uses many English words. BASIC is closer to human language than to the binary code which the computer uses itself. This is why a computer takes longer to execute a program written in BASIC than one written in assembly language. BASIC is the most common language of microcomputers. The letters stand for **B**eginner's **A**ll-purpose **S**ymbolic **I**nstructional **C**ode.



BAUD RATE

Baud rate is the measurement of how many digital signals can be sent in a certain period of time. The signals are called bits, and the time period is one second. Modems which have a baud rate of 300 can send 300 bits per second. Modems can operate at different baud rates.

If I spell the word PRINT in binary code, I write:

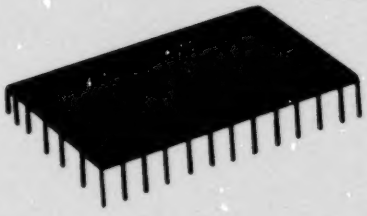
01010000 for P
01010010 for R
01001001 for I
01001110 for N
01010100 for T

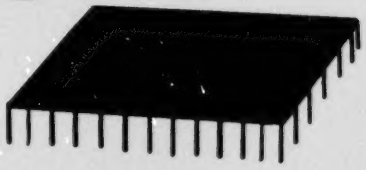
BINARY

Binary refers to the two digits, 0 and 1, which are used in binary code. Zeros and ones are used as a way of writing information which the computer can use. The zeros and ones stand for switches in a microchip which are either off (0) or on (1). The two digits are used in groups of eight or sixteen to stand for letters or numbers.

One of my switches is on, and it's shown by a 1.

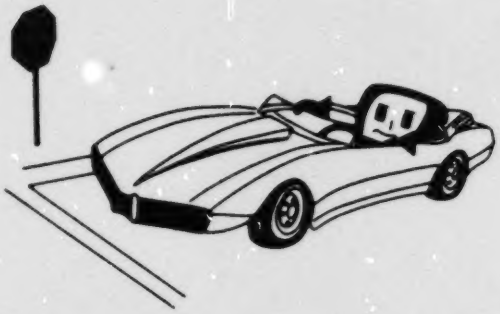
One of mine is off, and it's shown by a 0.





BIT

A bit is the smallest piece of information a computer can use and store. A bit is either the number zero or one. It tells the computer whether a switch in a microchip is off or on. Bits are put together in groups of eight to form bytes. The letters in bit stand for **bi**nary digit.



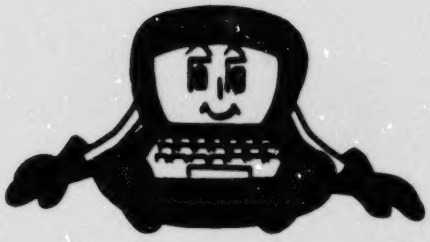
When I stop for a stop sign,
I interrupt
or break my journey.

BREAK

Break means to stop a program from running. When you are operating a program and wish to stop it, you can press a special key on the keyboard. On some computers, it is the break key and on others, it is the run/stop key.

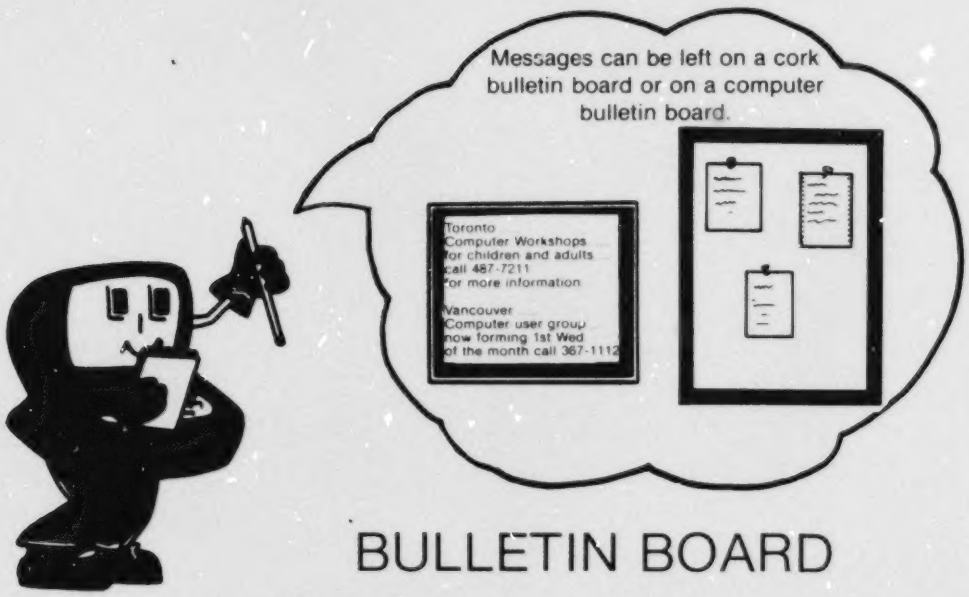
Can you find the 3 bugs in this BASIC program?

```
10 REM CRAZY PATTERNS
20 PRINT "****";
30 PRImT "////";
40 PRINT ////
50 END
60 GOTO 20
```



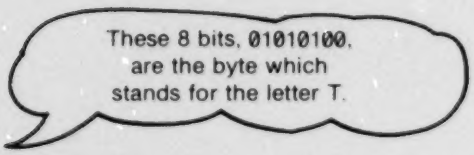
BUG

A bug is any error in a computer program or any defect in a computer system. It is necesary to find bugs and correct them so the computer can do its work properly. When you debug a program or system, you find and correct the errors and defects.


Messages can be left on a cork bulletin board or on a computer bulletin board.
Toronto
Computer Workshops
for children and adults
call 487-7211
for more information
Vancouver
Computer user group
now forming 1st Wed
of the month call 367-1112

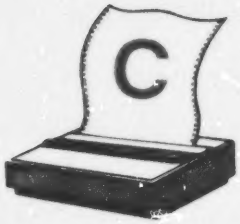
BULLETIN BOARD

A bulletin board is a data communication service. Instead of messages being posted on a cork bulletin board, they are stored in a computer's memory for others to use. People who have modems can operate a free **B**ulletin **B**oard **S**ervice (BBS) for others to use. If you have a modem, you can contact a BBS and read or leave messages.



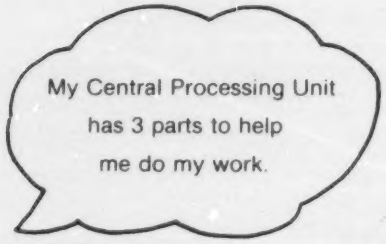
BYTE

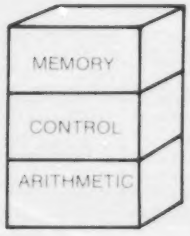
A byte is a group of bits. It represents a letter, number or symbol which a computer can store and process. Each byte contains eight bits. For example, the byte, 01010000, tells the computer to store or process the letter P.
A byte is also a unit of measurement of a computer's memory. Some computers have 64,000 bytes (64K) or more of memory.



CARTRIDGE

A cartridge is a small, plastic case which contains microchips. Information is stored on these microchips. Cartridges fit into a special place in microcomputers. They can be used to expand a computer's memory, to change the computer language or to play a game. The programs stored in a cartridge are a form of software.





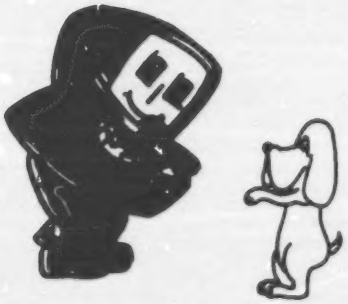
CENTRAL PROCESSING UNIT

A **C**entral **P**rocessing **U**nit (CPU) is the electronic part of a computer where information is worked on or processed. It receives the instructions, makes the décisions, does the arithmetic and controls everything the computer does. A microprocessor is the central processing unit in a microcomputer.

100 IF X = 99 THEN PRINT "that's right": GOTO 120
The colon has separated my IF-THEN statement and my GOTO statement on the same line.

COLON

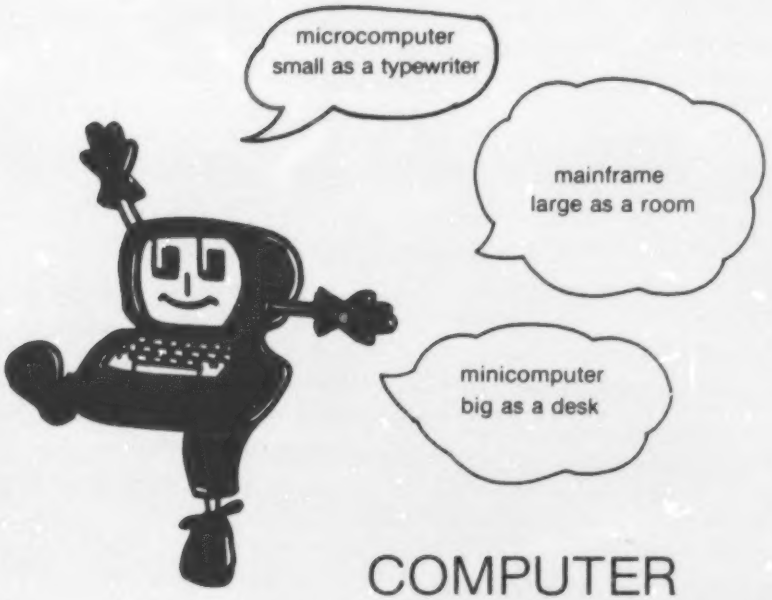
A colon is a sign which is used in a special way in computer programs. It looks like this:. In programs written in BASIC, a colon is used to connect two or more instructions with the same line number.



Rover understands my command: "Give me your paw."

COMMAND

A command is a word in a computer language which tells the computer to do something. You enter a command in BASIC, such as RUN or LIST, in the direct mode to tell the computer to do something right away.



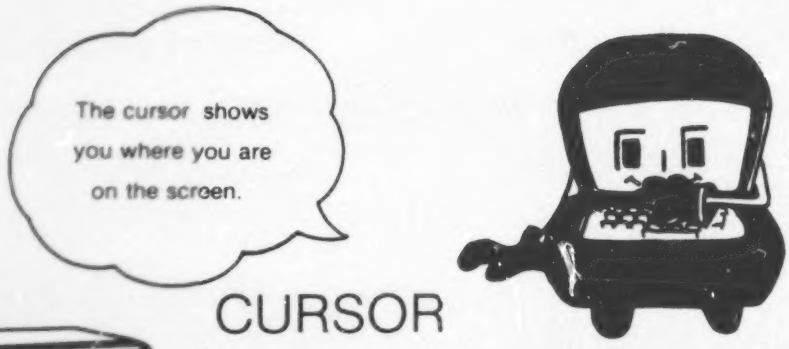
COMPUTER

A computer is a machine with a memory. It can accept information and store a set of instructions. Computers can work on instructions and information to solve problems and then give answers. All of these functions are done with remarkable speed.

If I crash my car I have to get another one and start again.

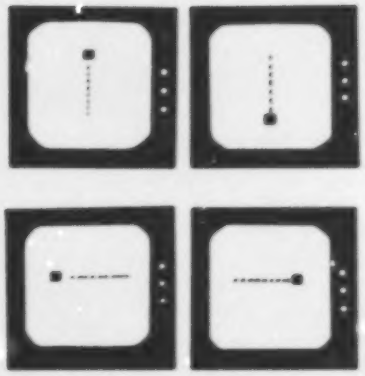
CRASH

Crash means to have a breakdown in a computer system. When a computer or program crashes, often all the information stored in the computer's memory is lost. As a result, the computer fails to work. When it crashes, you have to start again unless the computer has a special "help feature".



CURSOR

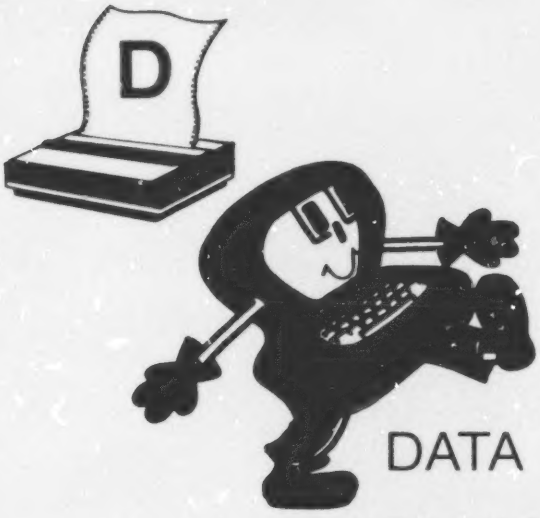
A cursor is a special symbol on a computer screen. It is usually a small square, and it is sometimes a flashing one. The cursor shows where the next typed text will appear on the screen. When you press a key on the keyboard, the cursor moves one space to the right. When the cursor reaches the right-hand side of the screen, it automatically moves to the next line on the left-hand side of the screen. The cursor can also be moved up, down, left or right with special, movement keys.



The cursor can be moved up, down, to the left and to the right.

CURSOR CONTROL

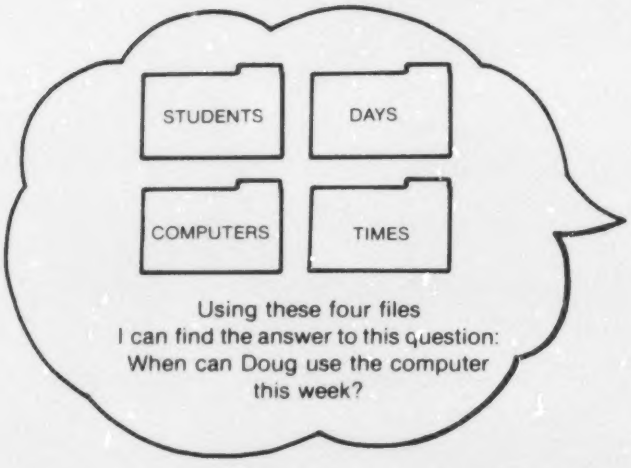
Cursor control is the way to direct the movement of the cursor on the screen. The cursor can be moved up, down, left or right by using special, movement keys on the keyboard. The use of these keys allows the cursor to move over the text without erasing it. These keys often have arrows showing the direction of movement. Sometimes, the movement keys must be used with another one, such as the shift or control key.

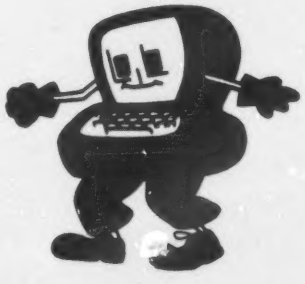


I will read this information when I need it for my program:
900 DATA 351, 220, 521, 429, 678
910 DATA John, Mary, Sally, Mark, Lou

DATA

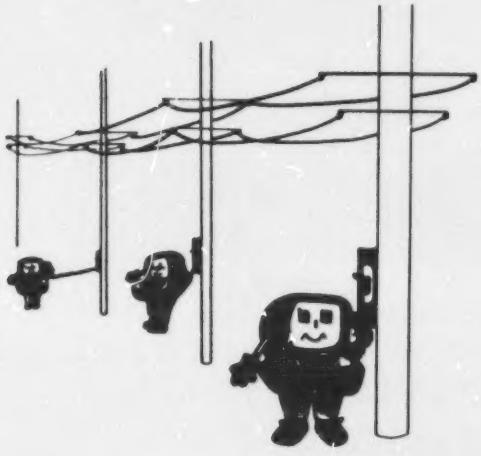
Data is information which a computer needs to solve a problem. Data can be in the form of numbers, words or symbols. DATA is also a command in BASIC. In this case, information is stored in DATA statements for the computer to use when a program is running.





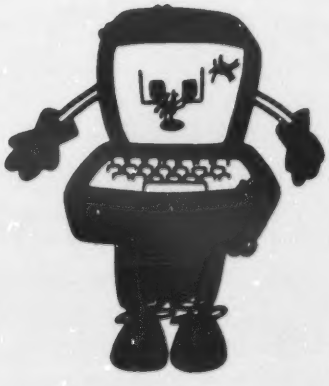
DATABASE

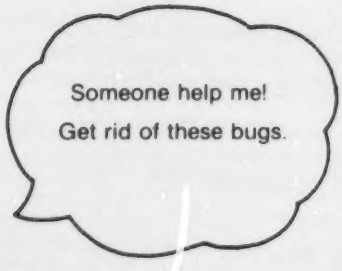
A database is a collection of files of data which are related. A database is organized in such a way that the information in the files can be handled or applied in several different ways. A database enables users to access separate files in order to solve a problem.



DATA COMMUNICATIONS

Data communications is the use of two or more computers which are connected by telephone lines. The computers can be across the street from one another, or they can be thousands of kilometers apart.





DEBUG

Debug means to find and correct mistakes or bugs in a computer program or a computer system. When the bugs are found and corrected, the computer can follow its instructions and do its job.

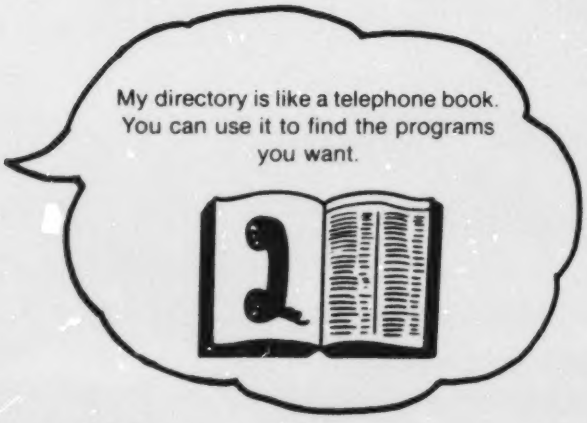
Digital information tells whether the light is on or off.

DIGITAL

Digital describes a kind of signal which is not continuous. When you are considering digital signals, you are checking to see if they are present or not. Computers use digital signals, which are represented by zeros and ones (binary code). These numbers indicate whether switches in the microchip are off or on. Microcomputers cannot use analog signals unless they are changed into digital signals.

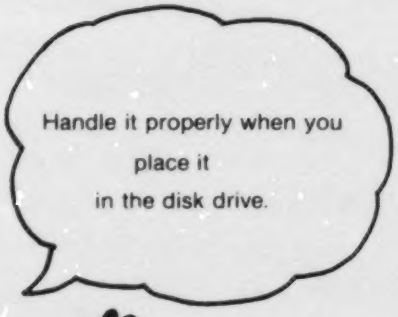
DIRECT MODE

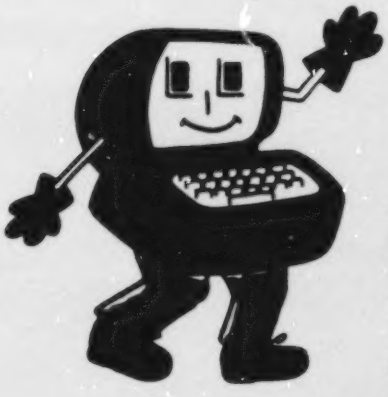
Direct mode is the way of communicating with a computer without having to use a program. It is also called the immediate mode. When you communicate in the direct mode, you type a command and other necessary information. You then press the return or enter key, and the computer acts on the command right away.



DIRECTORY

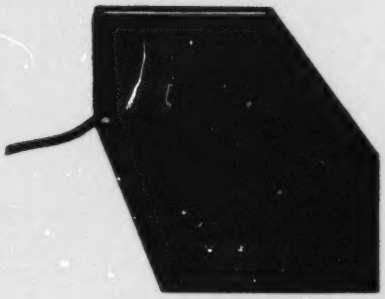
A directory is a iist of all the files on a disk, as well as the amount of space each file occupies on the disk. You can use the directory to see what files are on the disk and then make a choice to run one of the programs on file.





DISK

A disk is a flat, circular, plastic record with a magnetic coating, which is used for storing information and programs. Information is stored on the disk in the form of magnetic spots, which are arranged as binary data. Programs stored on disks are a kind of software and can be ioaded into microcomputers by using a disk drive. Flexible disks kept in paper envelopes are called floppy disks or disks, for short.



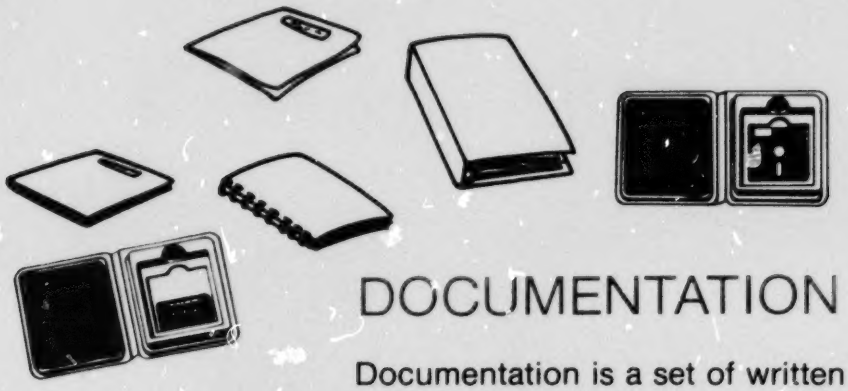
DISK DRIVE

A disk drive is a small machine which "reads" magnetic spots on disks. It can be instructed to transfer (load) information from disks to the computer's memory. A disk drive is also used to transfer (save) information from the computer's memory and "write" magnetic spots on disks. A disk drive is a piece of computer hardware.

To "boot the DOS" doesn't mean to kick your computer! It means to start up your Disk Operating System.

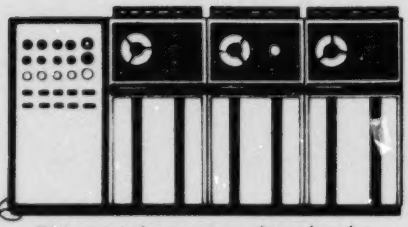
DISK OPERATING SYSTEM

A **D**isk **O**perating **S**ystem (DOS) is a program which is used by a computer with a disk drive. The disk operating system tells the disk drive how to use and organize a disk so it can operate with the computer. Usually, when you turn the disk drive on, you must first "boot", or start-up, the DOS.

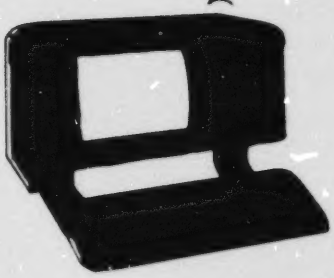


DOCUMENTATION

Documentation is a set of written instructions which explains how to use a computer or its software. The documentation for a computer is a user's manual, which describes the computer system, its parts and its use. The documentation for computer software includes the program's name, purpose and use.



This mainframe can download a program to be used on a microcomputer.



DOWNLOAD

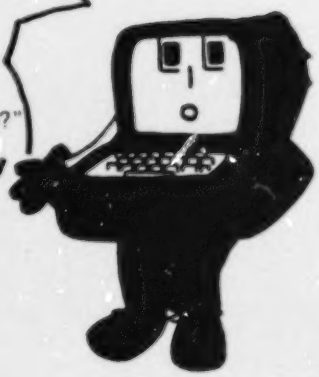
Download means to send information from one device or computer to another. Information can be downloaded from a host computer to another one over telephone lines. When information is coming to your computer, it is being downloaded. The opposite of download is upload.

OOPS! I forgot to put in:
- a colon on *line* 105
- an input statement
- and a space after "you" on line 110

```
100  PRINT "Hello"
105  PRINT PRINT "What's your name?"
110  PRINT "Nice to meet you"; N$
120  END
```

There that's better

```
100  PRINT "Hello"
105  PRINT: PRINT "What's your name?"
108  INPUT N$
110  PRINT "Nice to meet you "; N$
120  END
```

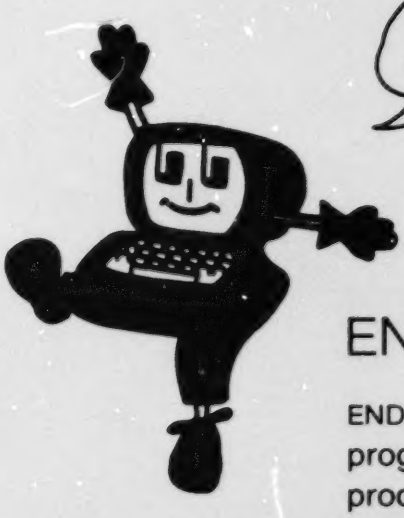


EDIT

Edit means to change information in a program in some way. To edit a program, you add or take out words or numbers. In many microcomputers, you can edit the text on the screen by using the cursor control keys.

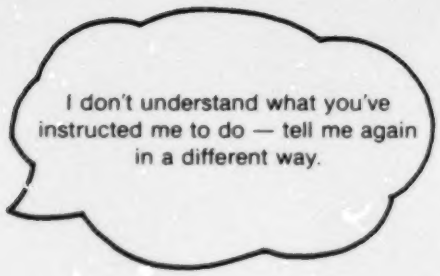
```
760 END
```

Oh boy, I can quit now!
I've come to the end of the program.



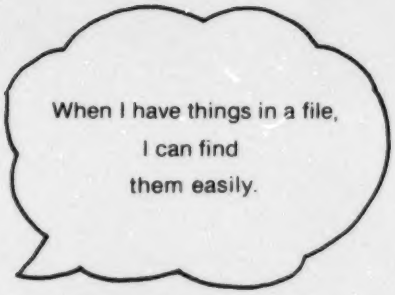
END

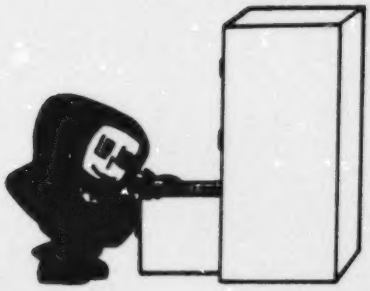
END is a statement in BASIC in a computer program. It instructs the computer that the procedure is finished and the end of the program has been reached.



ERROR MESSAGE

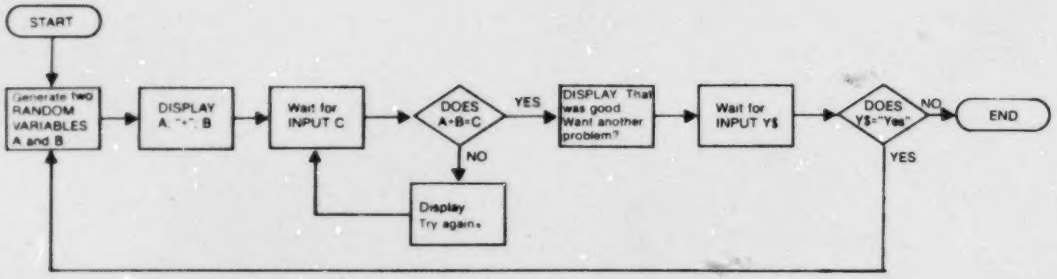
An error message is a phrase which a computer displays to instruct its user about a mistake. Computers are programmed to accept information in a special way only. When information is entered incorrectly, a computer identifies the mistake with an error message displayed on the screen. Some computers use words such as "syntax error" or "undefined statement", and others use code numbers.





FILE

A file is a collection of data which is stored under one title. A file is used to organize information so that it can be accessed by the computer as it is needed. When using a disk's directory, one of the programs is referred to as a file. Files are also found in data banks and databases.

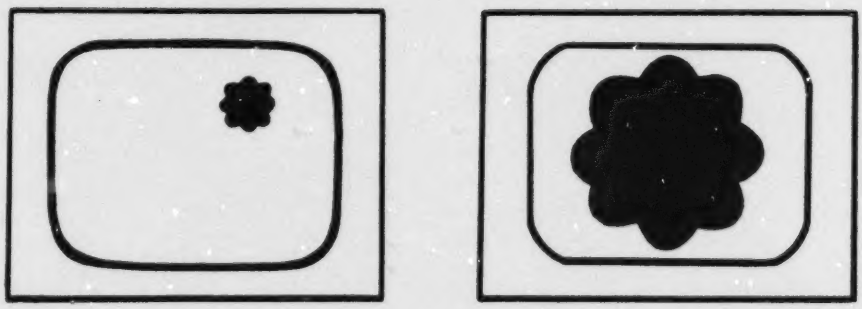


FLOW CHART

A flow chart is a drawing or a map which people design to show a procedure. A flow chart shows the steps of a procedure in the correct order. A computer program can be written from information in a flow chart.

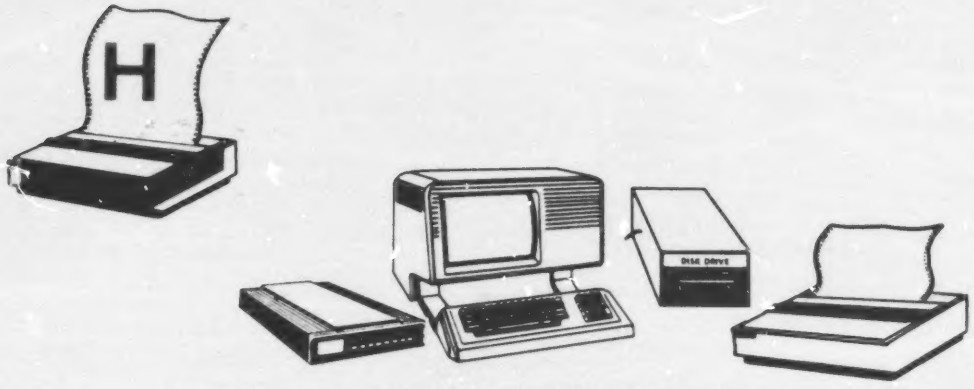
GLITCH

A glitch is any unexplainable computer problem. Early in the American space programme, a computer light switched on, but nothing appeared to be wrong. The astronaut said there was a **g**od-like **l**uminescence **i**n the swi**tch.** This was later shortened to glitch.



GRAPHICS

Graphics are pictures, charts and special designs which are drawn by a computer. Computer graphics can be seen on a computer screen or printed on paper. Screen graphics can be in color, and they can move.



HARDWARE

Hardware includes the computer and the pieces of equipment which are used with it. A disk drive, a printer and a modem are examples of hardware. The opposite of hardware is software, which is the programs written for the computer.

HIGH-LEVEL LANGUAGE

A high-level language is any computer language which is similar to human language. Computers use binary code as their language. High-level computer languages were developed so that people could communicate with computers without learning their complicated binary code. BASIC is a high-level language.

HOME

Home is a location of the cursor on the computer screen. The home position is usually the upper, left-hand corner of the screen. The cursor is found in the home position when the computer is turned on or the screen is cleared.

HOST

Host describes a computer which is set up to allow other computers and terminals to access its information. A host computer is equipped with a modem and a telephone line. Other computers and terminals can access the host's information and memory if they are also equipped with a modem and a telephone line.

I can use this information to solve my problem:

1. 3 variables: 2 numeric and 1 string
2. names and addresses of clients
3. amount of money to be paid

INFORMATION

Information is all the letters, numbers, symbols and words which a computer needs to do its work. Also, information can be the instructions and facts which the computer uses in programs. Sometimes information is called data.

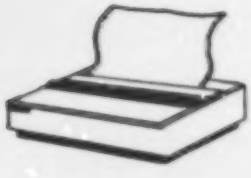
These are three ways I can be given input.

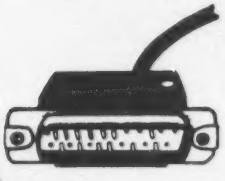
INPUT

Input is information which goes into a computer to be processed. There are different ways to give input to a computer. Input can be entered by typing on the keyboard, by moving a joystick or by pointing a light pen at the screen. When a computer program needs information, the computer displays an input prompt (a question mark) to signal the user for input. The computer processes the input to do its work. The opposite of input is output.

INTEGRATED CIRCUIT

An integrated circuit is a collection of many electronic circuits on a small piece of material called silicon. A microchip is called a **L**arge-**S**cale **I**ntegrated (LSI) circuit because thousands of different electronic circuits have been reduced in size to fit on it.

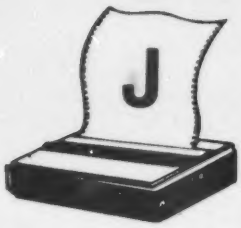


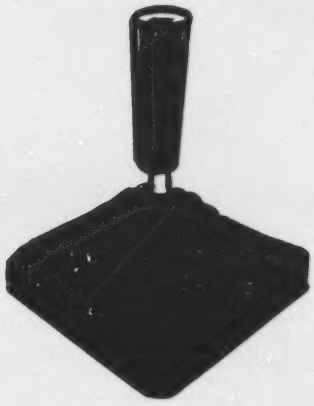


With this interface, I can connect this printer to my computer.

INTERFACE

Interface means to connect a computer to another machine or computer. When you interface two pieces of hardware, it allows them to work together. An interface can also be a piece of equipment which connects a computer to another piece of hardware such as a modem.



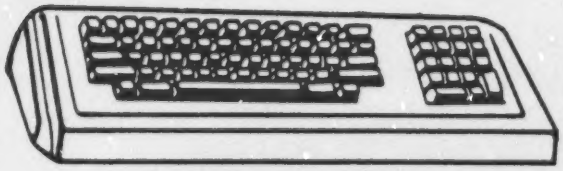


JOYSTICK

A joystick is a hand-held piece of equipment with a moveable handle and a button. The handle is used to steer objects on a computer screen; the button acts as a trigger. When you play games or run certain programs, a joystick can be used to give input to the computer. A joystick is a piece of computer hardware.

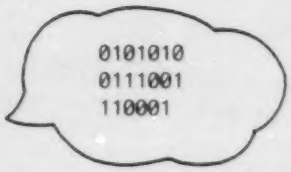
K

The letter K is short for kilobyte, which is a way of measuring a computer's memory. The word kilo in kilobyte usually stands for one thousand, but when we talk about computers, one kilobyte = 1024 bytes. And so a computer with 5K really has 5120 bytes of memory, but we round it off and say it has 5000 bytes.



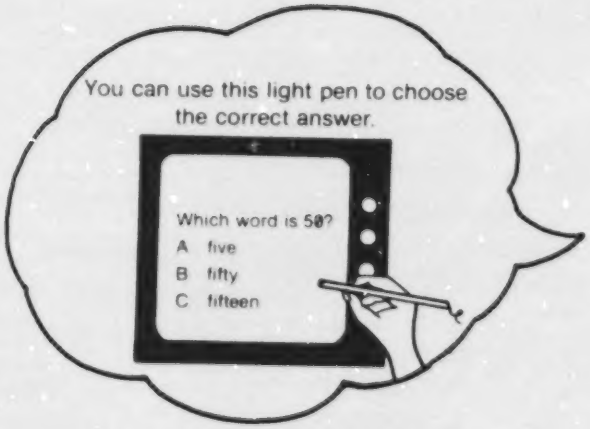
KEYBOARD

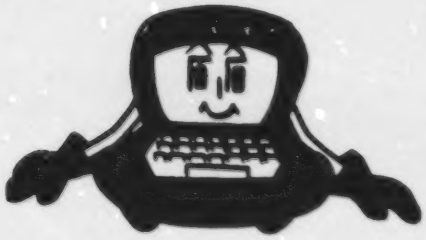
A keyboard is the piece of computer hardware which looks like a typewriter. It has many keys with letters, numbers and symbols on them. We press the keys tc input information into the computer. Many computer keyboards are similar to typewriter keyboards, and some have an extra set of number keys grouped together in what is called a number pad.



LANGUAGE

Language is all the words and numbers a computer understands. Computers understand their own machine language, and we understand human language. We use special languages which are between machine language and human language to communicate with computers. One language many microcomputers understand is called BASIC.





LIGHT PEN

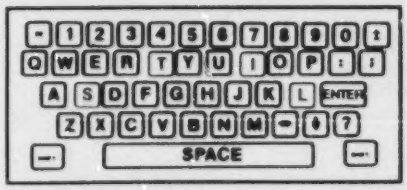
A light pen is a piece of computer hardware which detects beams of light on a computer screen. When the light beam strikes the pen's sensor, the pen signals to the computer that it is being pointed at a certain location. The light pen can be used to draw pictures and make selections on the screen.

```
10 ? "How much is 3+7?"
20 INPUT A
30 IF A=10 THEN? "Correct": END
40 ? "Sorry, it is wrong. Try again."
50 GOTO 20
```

Which line tells me to wait for an answer?

LINE NUMBER

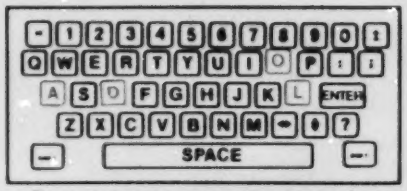
A line number is the number at the beginning of each line in many computer programs. Lines are given increasingly higher numbers so that the computer can follow its instructions in the proper order. A line number can also be used to identify a particular line in a program in case you want to make a correction or change.



Remember to press the enter key after typing in LIST!

LIST

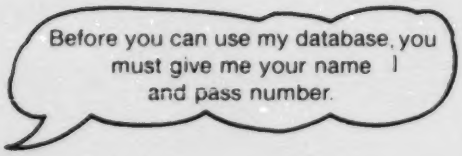
LIST is a command in BASIC which instructs a computer to display its programmed instructions on the screen. When you type the letters L I S T and then press the return or enter key, the computer will display the instructions of the program in its memory. This is useful in case you want to review or change part of the program.



Remember to press the enter key after typing in LOAD!

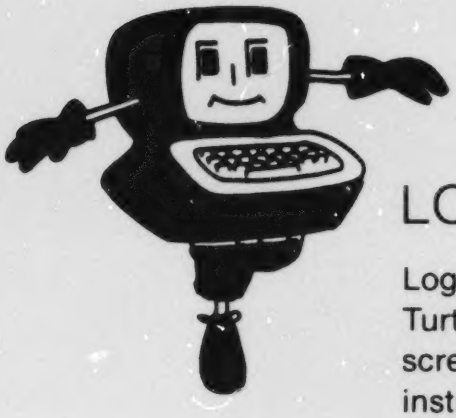
LOAD

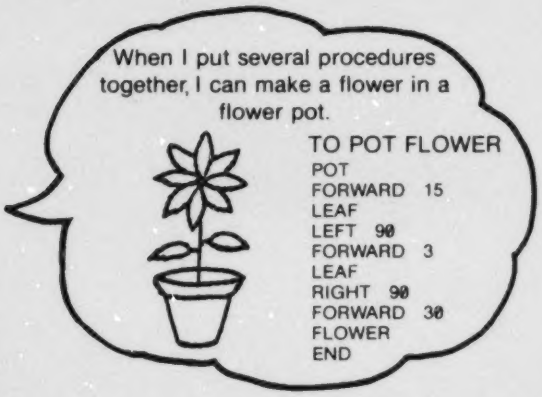
LOAD is a command in BASIC which instructs a computer to read a program from a tape or disk and to transfer it to the computer's memory. Sometimes the command is entered as CLOAD or DLOAD. With different kinds of computers, there are special ways to use the tape recorder or disk drive when you want to load a program. LOAD is the opposite of SAVE.



LOG-IN

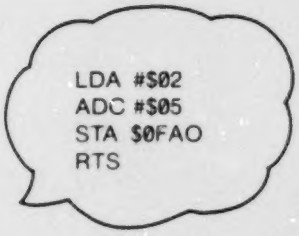
Log-in means to type or enter information into a computer for the purpose of identifying yourself as a user. A special codeword or number must be entered before some computers will let you access their information. This is important when many people use the same databank or computer to ensure that records are kept accurately. Log-in is also referred to as log-on.

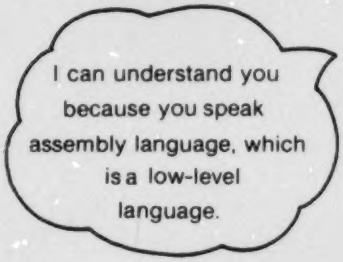


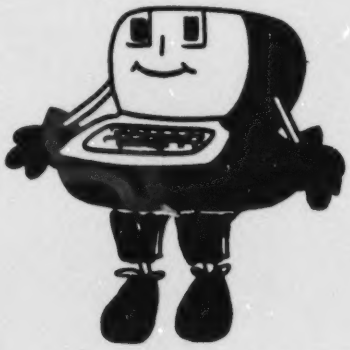


LOGO

Logo is a computer language which can use Turtle Graphics to show your ideas on the screen. With Logo you can put a list of instructions together as one procedure with a special name. You can combine several of these procedures to make new and different programs. In this way, Logo helps you to use the computer to think about and to experiment with ideas.

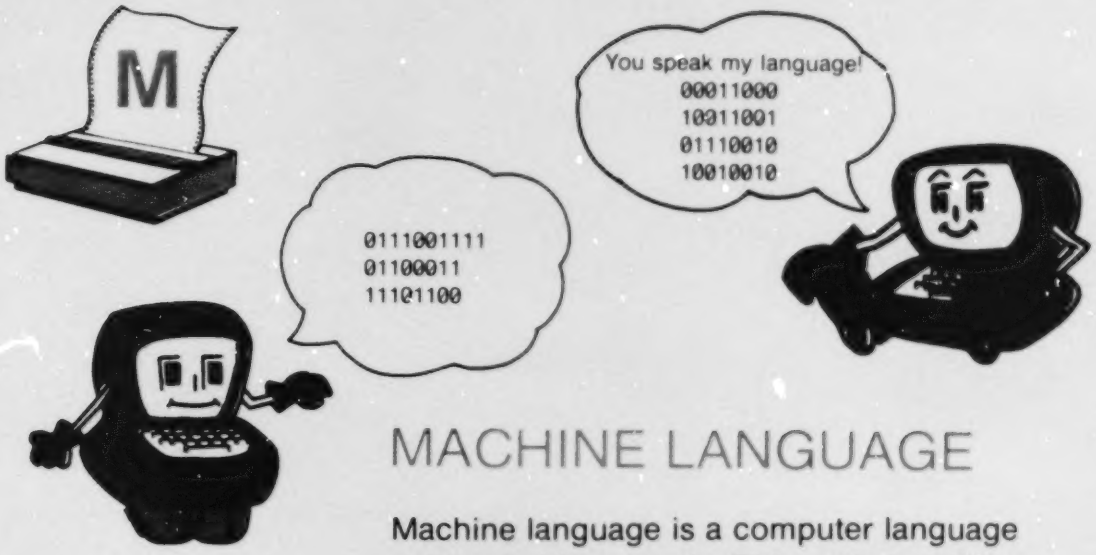






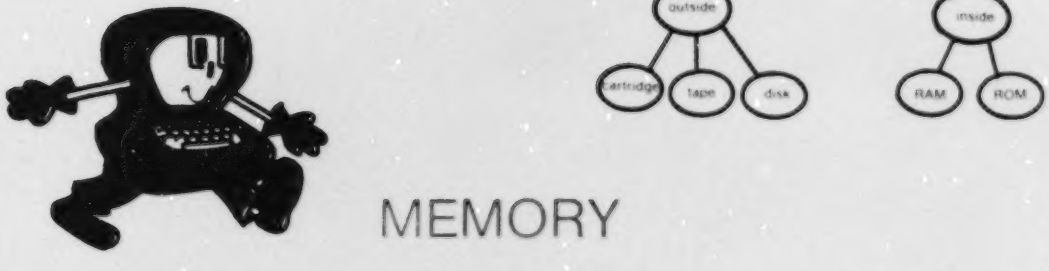
LOW-LEVEL LANGUAGE

A low-level language is any computer language which is close to binary code. A computer finds it more direct and quicker to use a low-level language than a high-level language, such as BASIC. People can use low-level languages instead of binary code to make it easier for them to communicate with computers. Assembly language is a low-level language.



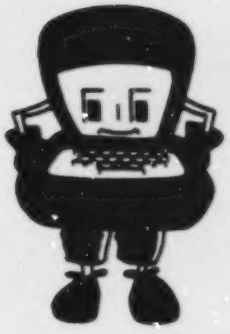
MACHINE LANGUAGE

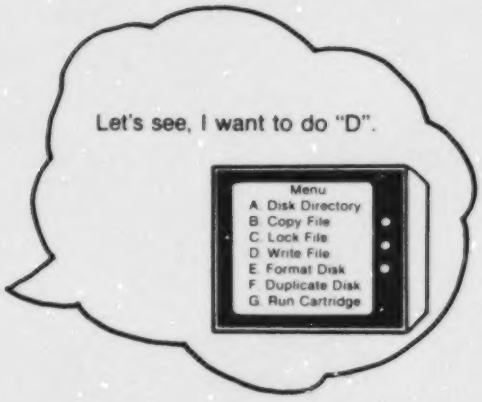
Machine language is a computer language written in binary code. This code is written in zeros and ones. Machine language is very detailed and monotonous for people to learn. A computer using machine language can operate at very fast speeds.



MEMORY

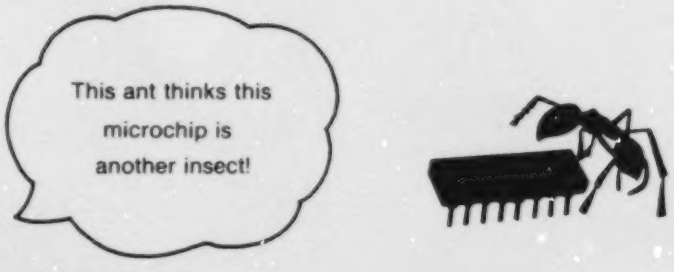
Memory is the place in a computer where information is stored. Some computers have large memories and can store large amounts of information. Others have small memories and cannot store as much. Information can also be kept outside the computer on disks, tapes or cartridges. A computer has two kinds of inside memory: RAM is memory which can be changed, and ROM is memory which is permanent.





MENU

A menu is a list of choices the computer displays on the screen. The computer is showing you the names of the programs which are available in its memory or on a disk. When you make a selection from the menu, the computer will run your choice. You can return to the menu when you wish to make another choice.

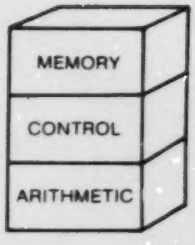


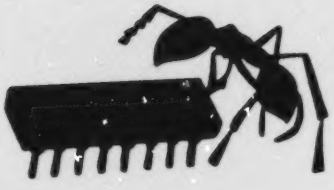
MICROCHIP

A microchip is a very small wafer of silicon which contains thousands of electronic circuits. Microchips are found inside microcomputers, where they handle the information the computer needs to do its work. Microchips are also found in cartridges. Microchips are called chips, for short. Different types of chips are ROM chips, RAM chips and microprocessors.

MICROCOMPUTER

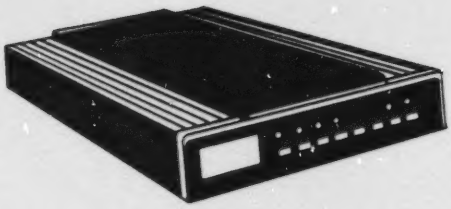
A microcomputer is a small computer which can be placed on a table or desk. It has a keyboard like a typewriter and microchips inside, which do its work. Some micro-computers have a built-in screen. Others are attached to a television set. Microcomputers are often called computers or micros, for short. Because they are small and can be used in homes, they are often referred to as personal or home computers.



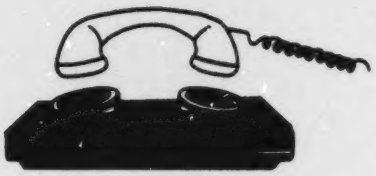


MICROPROCESSOR

A microprocessor is the main part of a small computer, contained on a small, silicon chip. It is a central processor, which can do math and logic as well as manage a program for a computer. In a microcomputer, a micro-processor is also called a microchip or central processing unit.



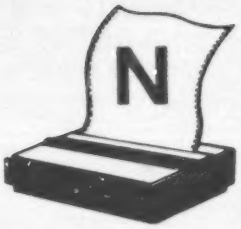
Direct Connect Modem

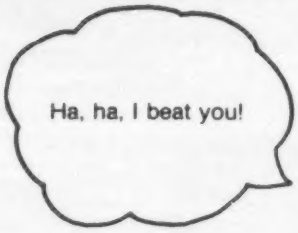


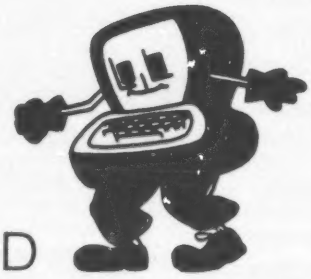
Acoustic Coupler Modem

MODEM

A modem is a piece of computer hardware which allows one computer to communicate with another computer over telephone lines. A modem changes the computer's digital signals to analog signals which can be sent over telephone lines. When the analog signals reach another computer, the modem at that end changes them back to digital signals. Modem stands for **mo**dulate-**dem**odulate. There are two types of modems, acoustic and direct-connect.

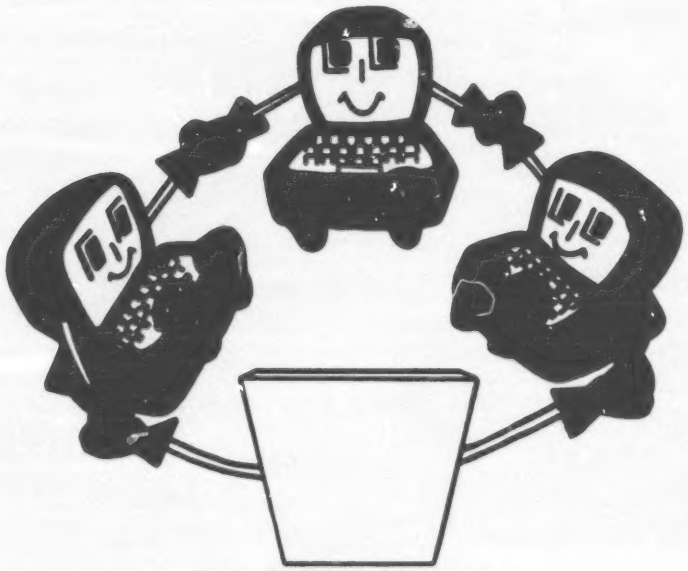






NANOSECOND

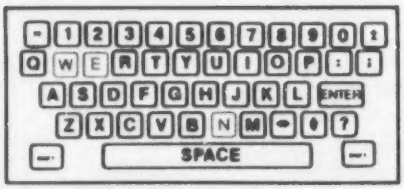
A nanosecond is one billionth of a second. It measures how fast something happens, and it is quicker than the speed of light. The work computers perform is measured in nanoseconds.



We really like working together.

NETWORKING

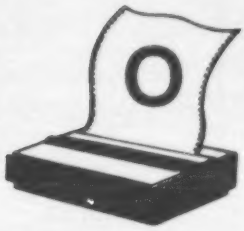
Networking means you are connecting computers in order to share information. You connect a number of microcomputers so that they can use the same program together or independently.

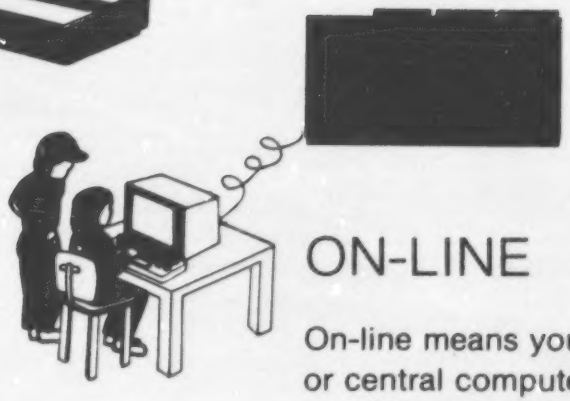


Remember to press the enter key after typing in NEW!

NEW

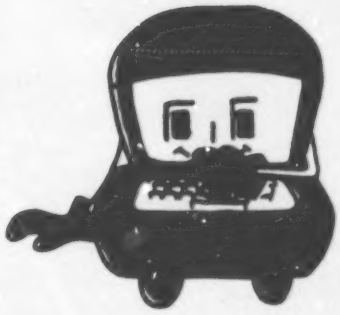
NEW is a command in BASIC which instructs the computer to forget the program in its memory. The computer is then ready to remember your new program. Your old program is forgotten by the computer after you type the letters N E W and then press the return or enter key.

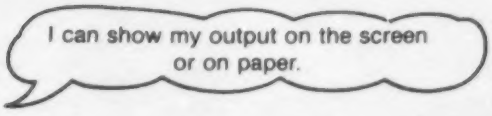


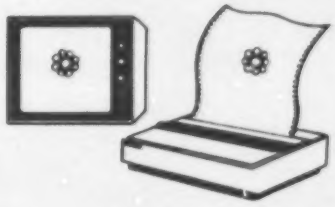


ON-LINE

On-line means you are connected to a main or central computer from a terminal in another location. The terminal may be connected to the computer over telephones lines, or it may be wired directly to the computer. The opposite of on-line is off-line. If the terminal is not accessing information from the main computer, it is said to be off-line.

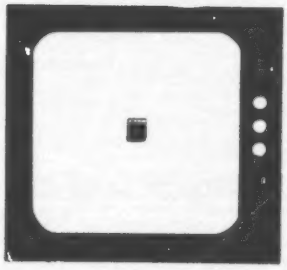






OUTPUT

Output is information which has been processed by the computer. There are different ways to obtain output from a computer. Output can be in the form of data shown on a video screen, a printout on paper or instructions to operate a robot. The opposite of output is input.



PIXEL

A pixel is the smallest block of light on the computer screen. You can draw on the screen by lighting up individual pixels. A program using graphics tells the computer which blocks of light to illuminate and which color to place in each pixel. With high-resolution graphics, the pixels are small; with low-resolution graphics, the pixels are large.

This program uses PRINT in four ways:

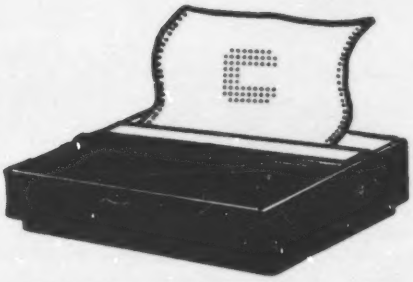
```
10 PRINT "I can add 10 to any
   number you give me."
20 PRINT "Give me a number."
30 INPUT N
40 PRINT
50 PRINT N; "plus 10="; N+10
```

PRINT

PRINT is a command in BASIC which tells the computer to display or output information. PRINT can be used in the direct mode or in the program mode. There are four different ways PRINT can be used:

1. to copy given information
2. to leave blank lines
3. to show answers to calculations
4. to show values of variables

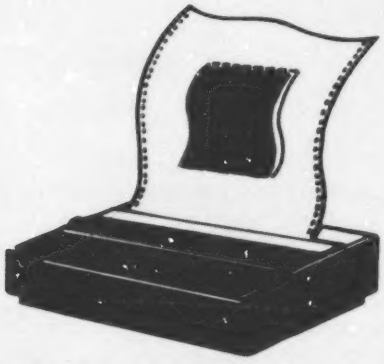
A question mark (?) can be used in place of the word PRINT with most microcomputers.



This "C" was printed by a dot-matrix printer.

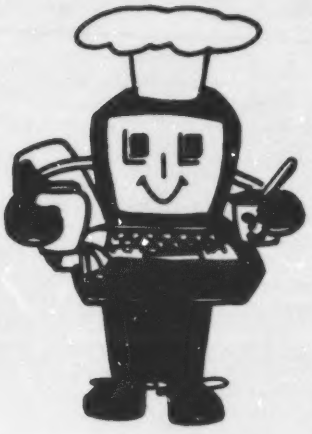
PRINTER

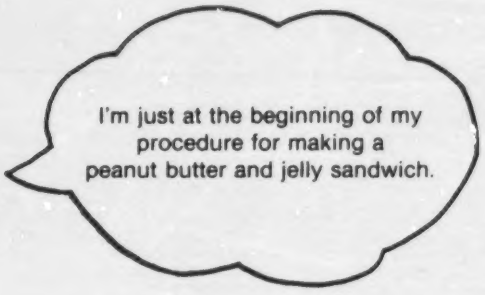
A printer is a piece of computer hardware which makes a copy of the computer's output on paper. The printed paper is called the printout. With a printer, you can make as many copies as you need.



PRINTOUT

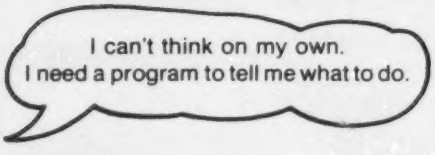
Printout is the output of the computer which is printed on paper. In order to obtain a printout, a command is given to the computer to instruct it to transfer information from the computer to the printer. Printout is also called hard copy.





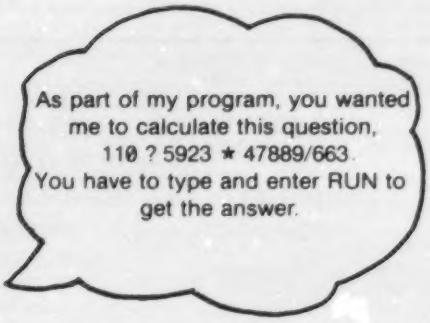
PROCEDURE

A procedure is a way of carrying out a task by following steps in a particular order. Just as we follow a procedure to make a sandwich, the computer needs to follow a procedure, in the form of a program, to tell it how to operate or to perform a task.



PROGRAM

A program is a set of step-by-step instructions or a procedure which tells the computer what to do. In some computer languages, each step is numbered so that the computer can follow the steps in order. The instructions are written in a language such as BASIC or Logo which the computer understands. The computer stores these instructions in its memory and waits until it is instructed to run the program. A person who writes programs is called a programmer.


As part of my program, you wanted me to calculate this question,
110 ? 5923 * 47889/663.
You have to type and enter RUN to get the answer.

PROGRAM MODE

Program mode is the way of communicating with a computer using a program. It is also called the deferred mode. When you communicate in the program mode, the computer does not act on the instructions immediately. Instead, it stores them in its memory until it is instructed to run the program.

10 ? "Hello"
I've used a question mark in place of the word PRINT.

QUESTION MARK

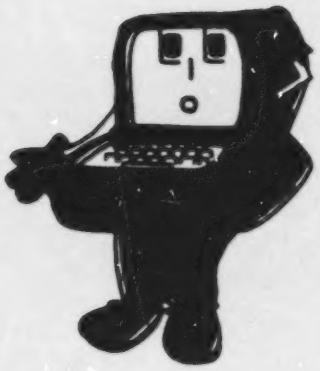
A question mark is a special sign used in a computer program. It looks like this: ?.
In BASIC, a question mark can be used in place of the word PRINT. It tells the computer to display certain information on the screen. A question mark is also used by the computer as an input prompt when the computer is waiting for the user to provide information.

The output I want displayed on the screen are these symbols:
♥ ♣ ♠ ♦
so I put them between quotation marks.

100 PRINT " ♥♣♠♦ "
RUN
♥ ♣ ♠ ♦

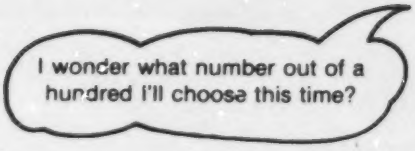
QUOTATION MARK

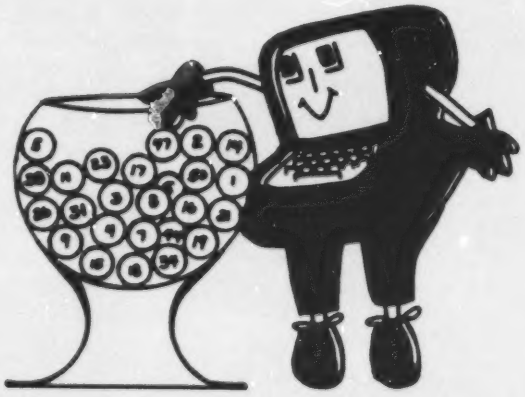
A quotation mark is a special sign used in a computer program. It looks like this: ".
In BASIC, a quotation mark can be used before and after the information you want displayed on the screen. It can be used with PRINT statements and string variables.



RAM

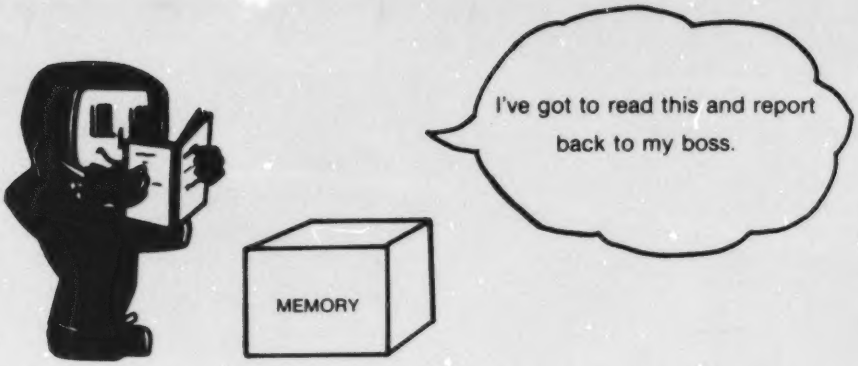
RAM is the memory inside a computer where programs and data are stored for a short time. RAM is memory which you can change when entering information or programs. Because RAM is temporary, information stored in it is automatically lost when the computer is switched off. The letters in RAM stand for **R**andom **A**ccess **M**emory.





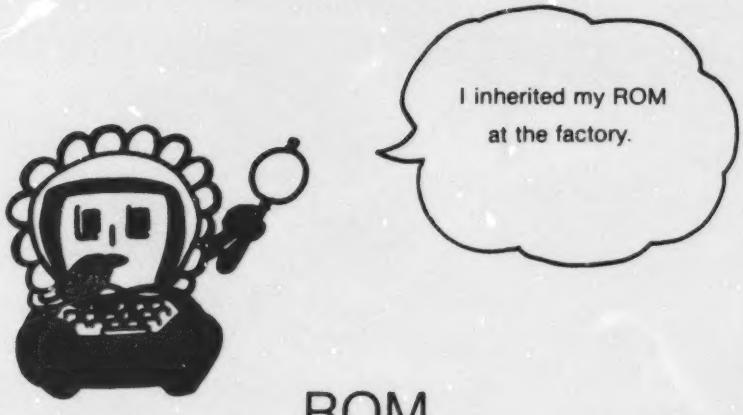
RANDOM NUMBER

A random number is a number which is picked by chance. A computer can be instructed to produce a set of numbers and then pick ones at random.



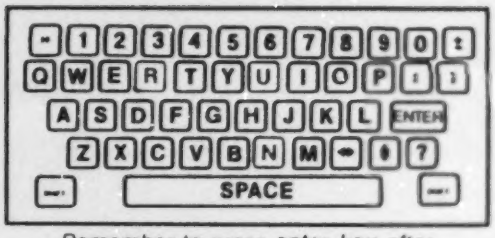
READ

READ is a command in BASIC which instructs the computer to find information which is stored in a program's DATA statements. Read also means to find and access data which is stored on disks or tapes.



ROM

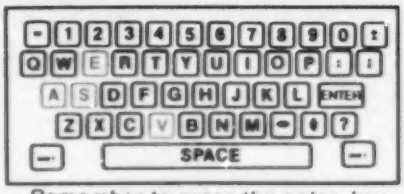
ROM is the memory which is used or read by the computer only. ROM is memory which you cannot change. It is permanent memory, which was built into the computer by the manufacturer. The computer uses the information in its ROM to tell it how to operate. The letters in ROM stand for **R**ead **O**nly **M**emory.



Remember to press enter key after typing in RUN!

RUN

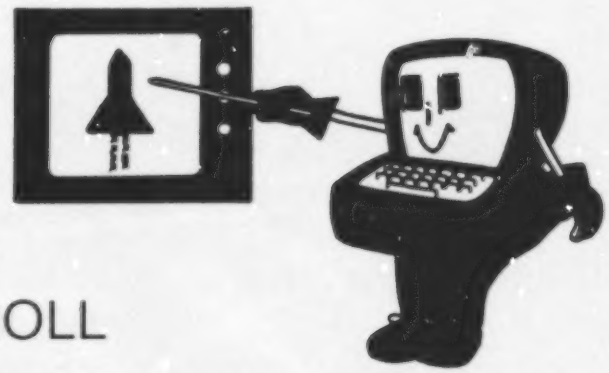
RUN is a command in BASIC which instructs a computer to start a program working. The computer follows the instruction in its memory when you type the letters R U N and then press the return or enter key.



Remember to press the enter key after typing in SAVE!

SAVE

SAVE is a command in BASIC which instructs a computer to read a program from the computer's memory and to store it on a tape or disk. Sometimes the command is entered as CSAVE or DSAVE. With different kinds of computers, there are special ways to use the tape recorder or disk drive when you want to save a program. SAVE is the opposite of LOAD.



SCROLL

Scroll is the way a computer normally moves the display on the screen. A computer usually prints one line of text at a time, from top to bottom. When all the lines on the screen have been used, the computer moves all the text up the screen to make room for more lines. This results in what appears to be movement up the screen.

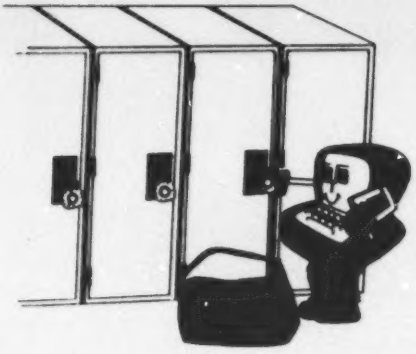
SEMICOLON

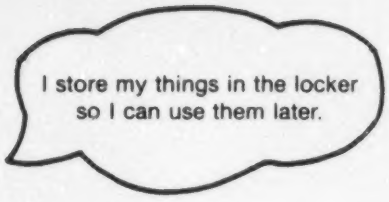
A semicolon is a special sign which tells the computer how to space its output. It looks like this: ⊡. In BASIC, a semicolon instructs the computer to continue working on the same line rather than showing its output on the next line.

These are different kinds of software.

SOFTWARE

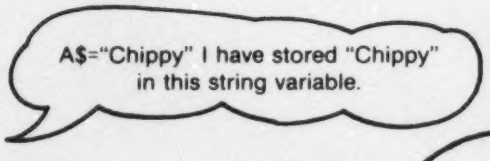
Software is programs and information which a computer uses to do its work. Software programs are stored on tapes, disks and cartridges. A programmer writes software for computers.

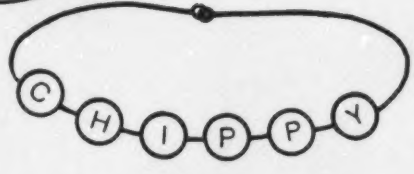




STORE

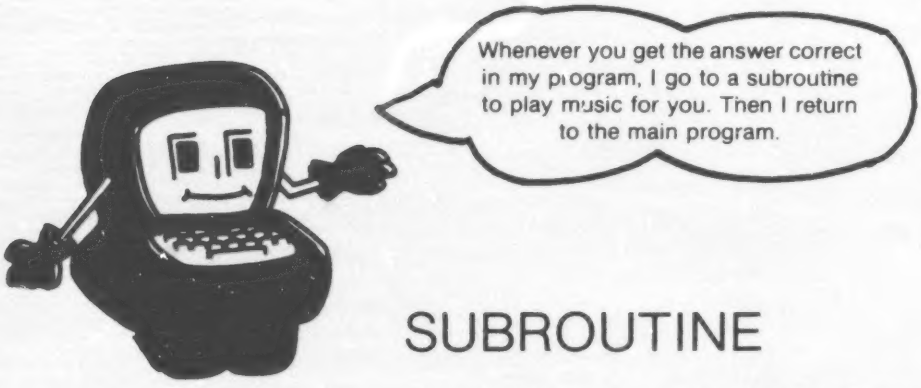
Store means to save information so that it can be used another time. You can store a program on a tape or disk. When you want to use it again, you can load it back into the computer's memory with a tape recorder or a disk drive.





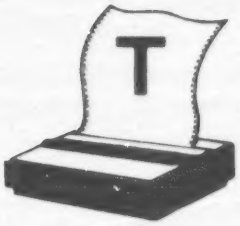
STRING

A string is a series of letters, numbers and/or other keyboard characters which you can store in a variable. For example, "125 Yonge Street" is a string. A string variable is shown by a letter followed by a dollar sign ($). For example, in N$="125 Yonge Street", N$ is the string variable.

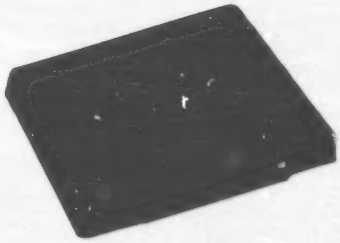

Whenever you get the answer correct in my program, I go to a subroutine to play music for you. Then I return to the main program.

SUBROUTINE

A subroutine is a part of a program which is usually repeated several times during the running of a program. A computer can be instructed with a command, such as GOSUB in BASIC, whenever it needs to use a subroutine. At the end of the subroutine, the computer is instructed with another command, RETURN. It will then return to the line in the program where it was instructed to go to the subroutine, and continue from there.



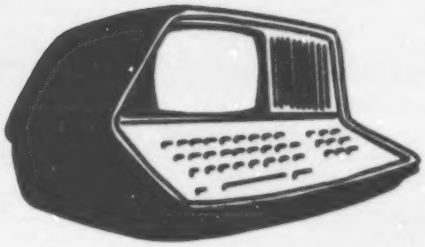
TAPE



A tape is a thin, plastic, magnetically coated ribbon inside a small case, which is used for storing information and programs. Information is stored in the form of magnetic spots, which are arranged as binary data. Programs stored on tapes are a kind of software and can be loaded into micro-computers by using a tape recorder. Cassette tapes which are used with microcomputers are called tapes or cassettes, for short.

TAPE RECORDER

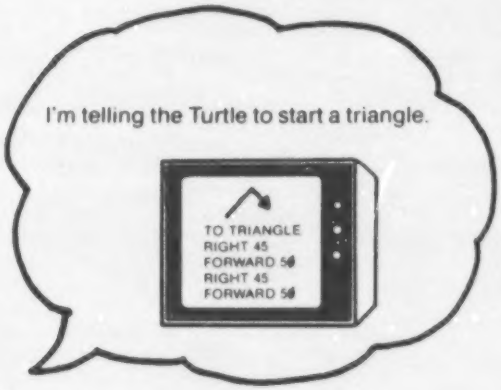
A tape recorder is a small machine which "reads" magnetic spots on tapes. It can be instructed to transfer (load) information from tapes to the computer's memory. A tape recorder is also used to transfer (save) information from the computer's memory and "write" magnetic spots on tapes. A tape recorder is a piece of computer hardware.



This terminal can be used with a mainframe.

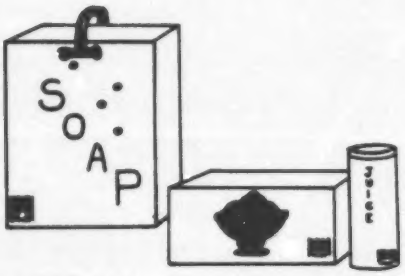
TERMINAL

A terminal is a small machine which is used for entering input and displaying output. It usually has a keyboard and some type of output display, such as a screen or a printer. Some terminals are "dumb", meaning they only input to, or output from, a computer which has a central processing unit. A microcomputer is considered an "intelligent" terminal because it has its own central processing unit.



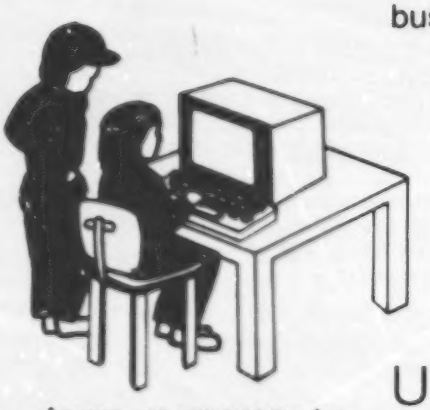
TURTLE GRAPHICS

Turtle Graphics is a way of drawing in Logo. You can teach the computer to make different shapes on the screen by following certain procedures. You tell the drawing cursor, called the "Turtle", to move forward or backward, and to turn left or right. Once you have taught the computer to make a shape, you can instruct the computer to draw it again just by naming the shape.



UNIVERSAL PRODUCT CODE

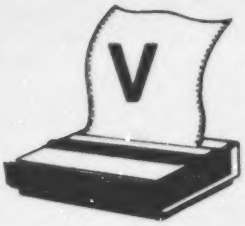
A **U**niversal **P**roduct **C**ode (UPC) is a special pattern of thick and thin lines with numbers. It is found on packages of products you buy at the store. The UPC is used by the store's computer to read information about the product at the check-out counter. This information is used to record prices, to monitor inventory and to perform other bookkeeping tasks which are necessary to a business.



Anyone can use a computer.

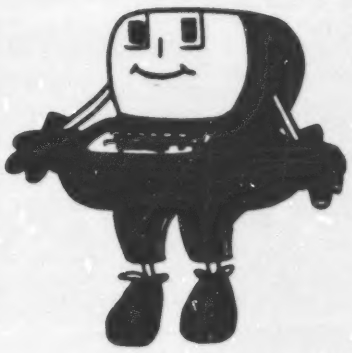
USER

A user is someone who works with or uses a computer. Users may write their own programs or work with programs which have been written by others. A "users' group" is a club of people who are interested in computers and share their ideas and programs.



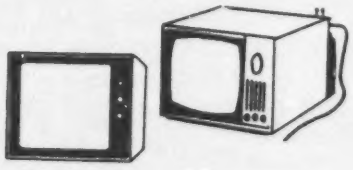
A	X	N$	R$	TRUCKS
99	128	Chippy	32 Cars	1001

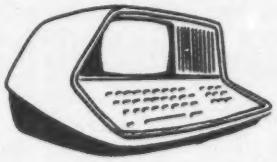
These variables are stored in my memory.



VARIABLE

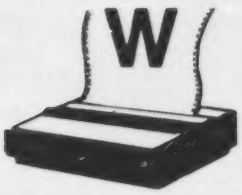
A variable is a labelled memory space in a computer which stores a piece of information. When a variable is labelled with a letter to take the place of numbers only, it is called a numeric variable, for example, X=32. A variable can also be labelled with a letter and a dollar sign to take the place of either a group of words, a single word or a group of words and numbers. In this case, it is called a string variable, for example, X$="32 cars".

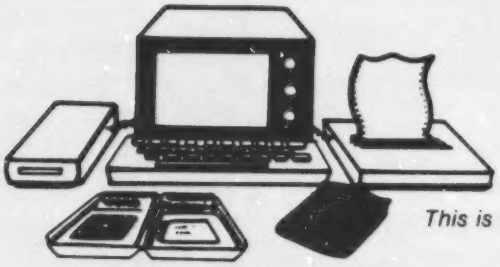




VIDEO SCREEN

A video screen is a piece of equipment where the computer can display information. You can see the computer's input and output on the video screen. The video screen looks like a television screen and is sometimes called a video display (monitor or screen, for short). Many microcomputers use regular television sets for their screens, and some come equipped with their own special screens.

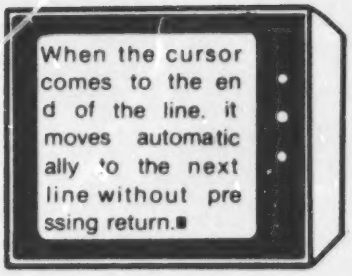




This is the equipment needed for word processing.

WORD PROCESSING

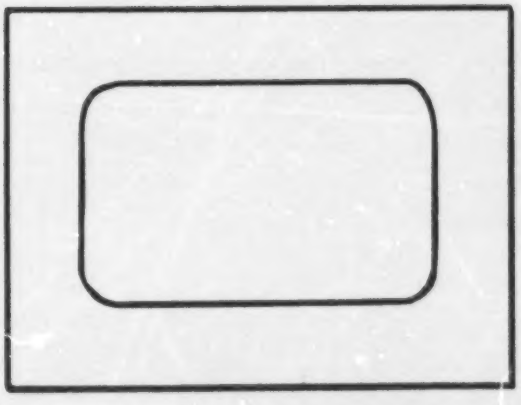
Word processing is a way of using a computer for typing and editing stories, reports and other forms of written communication. It allows the user to easily change the display on the screen. Words and sentences can be easily moved from one part of the text to another. With word processing, you do not have to retype the entire text when you change only part of it. The edited text is stored in the computer's memory and can be printed on paper when it is needed.

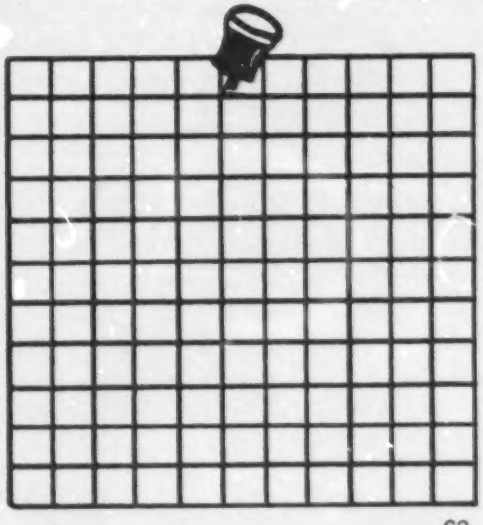


WRAPAROUND

Wraparound is the way the computer automatically moves its cursor from the end of one line to the beginning of the next line. When the cursor reaches the right-hand side of the screen, it returns itself to the left-hand side on the next line.

Your personal bulletin board!





WORDS AT A GLANCE

ACCESS	Access means to make contact with and to use a computer.
ADDRESS	An address is usually a number which refers to a particular location in the computer's memory.
ANALOG	Analog describes a kind of signal which is continuous.
ASSEMBLY LANGUAGE	Assembly language is one kind of computer language.
BASIC	BASIC is one kind of computer language.
BAUD RATE	Baud rate is the measurement of how many digital signals can be sent in a certain period of time.
BINARY	Binary refers to the two digits, 0 and 1, which are used in binary code.
BIT	A bit is the smallest piece of information a computer can use and store.
BREAK	Break means to stop a program from running.
BUG	A bug is any error in a computer program or any defect in a computer system.
BULLETIN BOARD	A bulletin board is a data communication service.
BYTE	A byte is a group of bits.
CARTRIDGE	A cartridge is a small, plastic case which contains microchips.
CENTRAL PROCESSING UNIT	A Central Processing Unit (CPU) is the electronic part of a computer where information is worked on or processed.
COLON	A colon is a sign which is used in a special way in computer programs.
COMMAND	A command is a word in a computer language which tells the computer to do something.
COMPUTER	A computer is a machine with a memory.
CRASH	Crash means to have a breakdown in a computer system.
CURSOR	A cursor is a special symbol on a computer screen.
CURSOR CONTROL	Cursor control is the way to direct the movement of the cursor on the screen.
DATA	Data is information which a computer needs to solve a problem.
DATABASE	A database is a collection of files of data which are related.

DATA COMMUNICATIONS	Data communications is the use of two or more computers which are connected by telephone lines.
DEBUG	Debug means to find and correct mistakes or bugs in a computer program or a computer system.
DIGITAL	Digital describes a kind of signal which is not continuous.
DIRECT MODE	Direct mode is the way of communicating with a computer without having to use a program.
DIRECTORY	A directory is a list of all the files on a disk, as well as the amount of space each file occupies on the disk.
DISK	A disk is a flat, circular, plastic record with a magnetic coating, which is used for storing information and programs.
DISK DRIVE	A disk drive is a small machine which "reads" magnetic spots on disks.
DISK OPERATING SYSTEM	A Disk Operating System (DOS) is a program which is used by a computer with a disk drive.
DOCUMENTATION	Documentation is a set of written instructions which explains how to use a computer or its software.
DOWNLOAD	Download means to send information from one device or computer to another.
EDIT	Edit means to change information in a program in some way.
END	END is a statement in BASIC in a computer program.
ERROR MESSAGE	An error message is a phrase which a computer displays to instruct its user about a mistake.
FILE	A file is a collection of data which is stored under one title.
FLOW CHART	A flow chart is a drawing or a map which people design to show a procedure.
GLITCH	A glitch is any unexplainable computer problem.
GRAPHICS	Graphics are pictures, charts and special designs which are drawn by a computer.
HARDWARE	Hardware includes the computer and the pieces of equipment which are used with it.
HIGH-LEVEL LANGUAGE	A high-level language is any computer language which is similar to human language.
HOME	Home is a location of the cursor on the computer screen.
HOST	Host describes a computer which is set up to allow other computers and terminals to access its information.

INFORMATION	Information is all the letters, numbers, symbols and words which a computer needs to do its work.
INPUT	Input is information which goes into a computer to be processed.
INTEGRATED CIRCUIT	An integrated circuit is a collection of many electronic circuits on a small piece of material called silicon.
INTERFACE	Interface means to connect a computer to another machine or computer.
JOYSTICK	A joystick is a hand-held piece of equipment with a moveable handle and a button.
K	The letter K is short for kilobyte, which is a way of measuring a computer's memory.
KEYBOARD	A keyboard is the piece of computer hardware which looks like a typewriter.
LANGUAGE	Language is all the words and numbers a computer understands.
LIGHT PEN	A light pen is a piece of computer hardware which detects beams of light on a computer screen.
LINE NUMBER	A line number is the number at the beginning of each line in many computer programs.
LIST	LIST is a command in BASIC which instructs a computer to display its programmed instructions on the screen.
LOAD	LOAD is a command in BASIC which instructs a computer to read a program from a tape or disk and to transfer it to the computer's memory.
LOG-IN	Log-in means to type or enter information into a computer for the purpose of identifying yourself as a user.
LOGO	Logo is a computer language which can use Turtle Graphics to show your ideas on the screen.
LOW-LEVEL LANGUAGE	A low-level language is any computer language which is close to binary code.
MACHINE LANGUAGE	Machine language is a computer language written in binary code.
MEMORY	Memory is the place in a computer where information is stored.
MENU	A menu is a list of choices the computer displays on the screen.
MICROCHIP	A microchip is a very small wafer of silicon which contains thousands of electronic circuits.
MICROCOMPUTER	A microcomputer is a small computer which can be placed on a table or desk.
MICROPROCESSOR	A microprocessor is the main part of a small computer contained on a small, silicon chip.

MODEM	A modem is a piece of computer hardware which allows one computer to communicate with another computer over telephone lines.
NANOSECOND	A nanosecond is one billionth of a second.
NETWORKING	Networking means you are connecting computers in order to share information.
NEW	NEW is a command in BASIC which instructs the computer to forget the program in its memory.
ON-LINE	On-line means you are connected to a main or central computer from a terminal in another location.
OUTPUT	Output is information which has been processed by the computer.
PIXEL	A pixel is the smallest block of light on the computer screen.
PRINT	PRINT is a command in BASIC which tells the computer to display or output information.
PRINTER	A printer is a piece of computer hardware which makes a copy of the computer's output on paper.
PRINTOUT	Printout is the output of the computer which is printed on paper.
PROCEDURE	A procedure is a way of carrying out a task by following steps in a particular order.
PROGRAM	A program is a set of step-by-step instructions or a procedure which tells the computer what to do.
PROGRAM MODE	Program mode is the way of communicating with a computer using a program.
QUESTION MARK	A question mark is a special sign used in a computer program.
QUOTATION MARK	A quotation mark is a special sign used in a computer program.
RAM	RAM is the memory inside a computer where programs and data are stored for a short time.
RANDOM NUMBER	A random number is a number which is picked by chance.
READ	READ is a command in BASIC which instructs the computer to find information which is stored in a program's DATA statements.
ROM	ROM is the memory which is used or read by the computer only.
RUN	RUN is a command in BASIC which instructs a computer to start a program working.
SAVE	SAVE is a command in BASIC which instructs a computer to read a program from the computer's memory and to store it on a tape or disk.
SCROLL	Scroll is the way a computer normally moves the display on the screen.

SEMICOLON	A semicolon is a special sign which tells the computer how to space its output.
SOFTWARE	Software is programs and information which a computer uses to do its work.
STORE	Store means to save information so that it can be used another time.
STRING	A string is a series of letters, numbers and/or other keyboard characters which you can store in a variable.
SUBROUTINE	A subroutine is a part of a program which is usually repeated several times during the running of a program.
TAPE	A tape is a thin, plastic, magnetically coated ribbon inside a small case, which is used for storing information and programs.
TAPE RECORDER	A tape recorder is a small machine which "reads" magnetic spots on tapes.
TERMINAL	A terminal is a small machine which is used for entering input and displaying output.
TURTLE GRAPHICS	Turtle Graphics is a way of drawing in Logo.
UNIVERSAL PRODUCT CODE	A Universal Product Code (UPC) is a special pattern of thick and thin lines with numbers.
USER	A user is someone who works with or uses a computer.
VARIABLE	A variable is a labelled memory space in a computer which stores a piece of information.
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Kathlene Willing, a reading specialist, and Suzanne Girard, a primary teacher, are the directors of Education In Progress, a learning and information centre in Toronto. They provide a wide range of educational services and teach computer courses for children and adults. Their experience with young students prompted them to write *The Primary Computer Dictionary* for the early grades. *The Junior Computer Dictionary* is for students in the middle grades. Their introductory book for adults is entitled, *Join the Computer Revolution.* Along with writing articles and book reviews, they produce an annual brochure, "New Canadian Children's Books," as well as one entitled, "Tips 'n Chips on Microcomputers."

Melanie Hayes is a freelance artist and illustrator. She studied art in high school and graduated from the Ontario College of Art before pursuing additional courses at Centennial College. Melanie and her husband make their home in Toronto where she combines a busy career with raising their young son. Along with her background in commercial art, she has developed a strong interest in portraiture and fashion illustration.